Hardware Name HRF ASD
Date 06/03/2003

Initial Assessment of Criticality (IAC)

1	ITEM NAME:	HRF Air Sampling Device
2	ITEM PART NUMBER:	SEG46119448-301
3	DOCUMENT/REPORT DATE:	06/03/2003
4	FUNCTION: The HRF ASD will be used to take air samples from strategic locations in all ISS modules currently on orbit as well as ~~launch~~ MBS vehicles prior to launch. Once the hardware is unstowed from the SWAB ASD Kit, the HRF Filter Unit will be attached to the ASD and the crewmember will turn the ASD on and select a sample rate and volume to be taken by the ASD. Since the device is hand held, it can be used in any habitable module or launch vehicle. Once operating, air is drawn through the Filter Unit via an internal impeller wheel; the crewmember is free to move to target locations for air sampling or simply stick to one of the walls/racks via a Velcro surface. After the air sample protocol is completed, the Filter Unit is simply removed from the ASD, labeled were the sample was taken and ~~when~~ MBS then placed into its original package and sealed inside a zip lock bag. The zip lock back is then placed inside a SWAB Transfer Kit. After all air-sampling protocols have been completed; the ASD is returned to the SWAB ASD Kit and returned to its stowed location.	
5	GROUNDRULES/ASSUMPTIONS: • The ASD will only be powered via battery. • The ASD does not interface with any other equipment. • When the ASD is not in use it will be stowed. • The ASD is only to be operated to collect air samples and not used as a vacuum.	
6	DESCRIPTION: The HRF Air Sampling Device (ASD) is a hand held air sampler that draws air through a Filter Unit using a gelatin membrane filter that is attached to the front end of the device. Air is pulled across via an integrated internal impeller motor system. The amount of air and flow rate is set via the control panel on the top of the device. The sample volume can be set in increments of 5 liters and the flow rates include 30 L/min, 40 L/min and 50 L/min. The motor and other control electronics of the ASD is powered by a 16.8 Volt Nickel Metal hydride Battery and the device operates between 5 –14 Watts depending on the set flow rate. The maximum current during a turn on event is about 1.0 Amps but during sampling sessions the current draw is about .520 Amps. This device is not a closed system or oxygen consuming device and is not safety critical.	
7	EFFECT OF FAILURE: Failure due to premature operation or failure to cease operation at a specified time would result in the air sampling device will result in inaccurate data, as the sampler may run excessively. Failure to perform within specification or during operation would also result in inaccurate sample results or loss of data. Failure of the ASD to function would result in loss of science because the device would no longer be able to operate. Failure of the ASD to function will not cause loss of critical mission support capability, loss of life or Station or vehicles. MBS	
8	CRITICALITY CATEGORY:	3
9	DETAILED FMEA REQUIRED:	N/A
10	RATIONALE: Failure of the ASD to function would result in loss of science, but will not cause loss of critical mission support capability, loss of life or Station or vehicles MBS. The SWAB ASD is only used for non-critical operations.	
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12	CONCURRENCES:	
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14	APPROVALS:	
	MARY BETH SCHWARTZ — CHAIR (printed)	[signature] — CHAIR SIGNATURE — 6-4-03 — DATE

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